



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,019	07/11/2003	Toshio Masuda	520.34403C11	2703
20457	7590	03/21/2005	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			DEO, DUY VU NGUYEN	
			ART UNIT	PAPER NUMBER
			1765	

DATE MAILED: 03/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

19

Office Action Summary

Application No.

10/617,019

Applicant(s)

MASUDA ET AL.

Examiner

DuyVu n Deo

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,7,9,11,13,15,17,25,29 and 33 is/are allowed.
- 6) ☒ Claim(s) 2,4,6,8,10,12,14,16,18-24,26-28,30-32 and 34-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/611,758.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/11/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 19, 20, 23, 24, 27, 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Tatsumi (US 5,362,361).

Tatsumi describes a plasma etching method comprising: supplying an etching gas into the chamber; generating a plasma for etching of the wafer; heating the inner sidewall of the chamber by heater 13 to a T of approximately 70 degrees Celsius during the generating of the plasma (col. 5, line 12-35; col. 5, line 56-68). This would read on claimed detecting the inner wall T utilizing the monitor unit so as to continuously monitor the inner wall at the time of the plasma processing the wafer because the inner wall must be monitored in order to detect and control the T at 70 degrees Celsius.

Since the inner wall T is set to 70 degrees Celsius, it must be set in advance corresponding to the plasma condition for the wafer.

Referring to claim 23, the history of the processing parameters including inner wall T would and must always be saved or obtained for the adjusting and monitoring the processing parameters.

Referring to claim 27, the temperature of the inside chamber is controlled by a heater 13 before the wafer is processed with a plasma (col. 5, line 56-68).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21, 22, 31, 32, 35, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsumi.

Referring to claim 21, it is well known to one skilled in the art that hundreds of wafers are processed at a time. Therefore, monitoring the inner wall as one by one being processed until they are all complete would be obvious to one skilled in the art in order to keep the desired T constant through out the processing of each wafer.

Referring to claim 31, Tatsumi doesn't describe interrupting plasma processing in response to the monitored inner wall T or generating an alarm in response to the monitored T. However, it would have been obvious for one skilled in the art to generate an alarm to in response to the monitored T and interrupt the process if the T of the inner wall is not at the desired T of 70 degrees Celsius in order to readjust the inner wall T to the desired T so that wafers can be processed at the optimum processing parameters.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 1765

6. Claims 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. It is unclear where in the specification teaching of setting in advance a temperature of the inner wall corresponding to a plasma processing condition for the specimen.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 5, 6, 23, 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation monitoring a temperature of the inner cylinder at a time of plasma processing of the specimen so as to obtain a history of the specimen up to an interruption of plasma processing for the specimen which is checkable is vague and indefinite because it is unclear what is checkable.

9. Claim 19 recites the limitation "the inner cylinder temperature". There is insufficient antecedent basis for this limitation in the claim. At this time it is understood as inner wall temperature.

Art Unit: 1765

Double Patenting

10. Claims 1-36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 6,815,365 or claims 20-29 of U.S. Patent No. 5,874,012 . Although the conflicting claims are not identical, they are not patentably distinct from each other because they all describe monitoring or controlling the inner wall T of the processing chamber during the processing of a specimen.

Allowable Subject Matter

11. Claims 1-18 are allowable because applied prior art, Tatsumi, doesn't suggest or describe detecting or monitoring the temperature of the inner cylinder because he doesn't describe the apparatus having the inner cylinder, which is arranged inside the outer cylinder of the process chamber.

Claims 25, 26 are allowable because Tatsumi doesn't describe or suggest monitoring a temperature of an inner wall during a seasoning operation to detect the temperature of the inner wall when the seasoning operation is carried out in the process chamber.

Claims 29, 30, 33, and 34 are allowable because Tatsumi doesn't describe or suggest monitoring a temperature of an inner wall of the process chamber after the cleaning operation and before starting of the plasma processing for the specimen.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n Deo whose telephone number is 571-272-1462. The examiner can normally be reached on 6:00-3:30; with alternate Friday off.

Art Unit: 1765

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Primary Examiner

Duy-Vu N. Deo

3/15/05

